Complete Summary

GUIDELINE TITLE

Management of diabetes mellitus.

BIBLIOGRAPHIC SOURCE(S)

Michigan Quality Improvement Consortium. Management of diabetes mellitus. Southfield (MI): Michigan Quality Improvement Consortium; 2006 Jul. 1 p.

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Management of diabetes mellitus. Southfield (MI): Michigan Quality Improvement Consortium; 2004 Jul. 1 p.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Type 1 and type 2 diabetes mellitus

GUIDELINE CATEGORY

Counseling
Evaluation
Management
Prevention
Risk Assessment
Treatment

CLINICAL SPECIALTY

Endocrinology
Family Practice
Internal Medicine

INTENDED USERS

Advanced Practice Nurses
Health Plans
Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

- To achieve significant, measurable improvements in the management of diabetes mellitus through the development and implementation of common evidence-based clinical practice guidelines
- To design concise guidelines that are focused on key management components of diabetes mellitus to improve outcomes

TARGET POPULATION

Patients 18 to 75 years of age with type 1 or type 2 diabetes mellitus

INTERVENTIONS AND PRACTICES CONSIDERED

Evaluation

1. Blood pressure
2. Cardiovascular risks
3. Weight, body mass index (BMI)
4. Comprehensive foot exam (including monofilament testing annually)
5. Dilated eye exam
6. Laboratory tests including hemoglobin A_1C, urine microalbumin measurement, serum creatinine and calculated glomerular filtration rate (GFR), and fasting lipid profile

Management/Treatment

1. Antihypertensive medications including angiotensin-converting enzyme (ACE) inhibitors and angiotensin receptor blockers (ARBs)
2. Statin therapy
3. Assurance of appropriate immunization status
4. Low-dose aspirin therapy
5. Education/counseling for cardiovascular risk reduction, including smoking cessation intervention, nutrition counseling, self-monitoring of blood glucose for glycemic control, regular physical activity, self-care of feet, preconception counseling, and dental care

MAJOR OUTCOMES CONSIDERED

Not stated

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The Michigan Quality Improvement Consortium (MQIC) project leader conducts a search of current literature in support of the guideline topic. Computer database searches are used to identify published studies and existing protocols and/or clinical practice guidelines on the selected topic. A database such as MEDLINE and two to three other databases are used. The Michigan Quality Improvement Consortium project leader collects and documents search results (i.e., citations, abstracts and full text articles).

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Levels of Evidence for the Most Significant Recommendation

A. Randomized controlled trials
B. Controlled trials, no randomization
C. Observational studies
D. Opinion of expert panel

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Using the health plan guideline summaries and information obtained from the literature search, the Michigan Quality Improvement Consortium (MQIC) director and/or project leader prepare a draft guideline for review by the MQIC Medical Directors.

The draft guideline and health plan guideline summaries are distributed to the MQIC Medical Directors for review and discussion at their next committee meeting.

The review/revision cycle may be conducted over several meetings before consensus is reached. Each version of the draft guideline is distributed to the MQIC Medical Directors, Measurement, and Implementation Committee members for review and comments. All feedback received is distributed to the entire membership.

Once the MQIC Medical Directors achieve consensus on the draft guideline, it is considered approved for external distribution to practitioners with review and comments requested.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

External Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Once the Michigan Quality Improvement Consortium (MQIC) Medical Directors achieve consensus on the draft guideline, it is considered approved for external distribution to practitioners with review and comments requested.

The Michigan Quality Improvement Consortium director also forwards the approved guideline draft to presidents of the appropriate state medical specialty societies for their input. All feedback received from external reviews is presented for discussion at the next Michigan Quality Improvement Consortium Medical Directors Committee meeting. In addition, physicians are invited to attend the committee meeting to present their comments.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The level of evidence grades (A-D) are provided for the most significant recommendations and are defined at the end of the "Major Recommendations" field.

Periodic Assessment

Assessment should include:

- Weight, body mass index (BMI)[1]
- Blood pressure **[A]** (adult target of <130/80)
- Assess cardiovascular risks:
    - Smoking, hypertension, dyslipidemia, sedentary lifestyle, obesity, stress, family history, age >40 years, gender
- Comprehensive foot exam (including monofilament testing annually) **[B]**
- Screen for depression **[D]**
- Dilated eye exam by ophthalmologist or optometrist **[B]**, or digiscope **[B]**

Frequency

At least annually and more frequently as needed

Laboratory Tests

Tests should include:

- Hemoglobin A_1C **[D]**
- Urine microalbumin measurement **[D]**
- Serum creatinine and calculated glomerular filtration rate (GFR) **[D]**
- Fasting lipid profile

Frequency

Hemoglobin A_1C: 2 to 4 times annually based on individual therapeutic goal[2]; other tests at least annually

[1]BMI = weight (kg)/height squared (m^2) or (pounds x 703)/$inches^2$

[2]Develop or adjust the management plan to achieve normal or near-normal glycemia with an A_1C goal of <7%. Less stringent treatment goals may be appropriate for patients with a history of severe hypoglycemia, patients with limited life expectancies, very young children, or older adults, and individuals with comorbid conditions. More stringent treatment goals (i.e., a normal A_1C <6%) for individual patients and in pregnancy.

Education, Counseling, and Risk Factor Modification

People with diabetes should receive medical care from a physician-coordinated team:

- Consider referral to diabetes educator if education not provided by physician or practice staff
- Education should include:
    - Nutrition counseling, including role of weight in insulin resistance and importance of progress toward ideal body weight
    - Role of self-monitoring of blood glucose in glycemic control **[A]**
    - Cardiovascular risk reduction
    - Smoking cessation intervention **[B]** and secondhand smoke avoidance **[C]**
    - Regular physical activity **[A]**
    - Self-care of feet **[B]**
    - Preconception counseling **[D]**
    - Encourage patients to receive dental care

Frequency

At diagnosis and as needed

Medical Recommendations

Care should focus on smoking, hypertension, lipids, and glycemic control:

- Treatment of hypertension using up to 3 or 4 anti-hypertensive medications to achieve adult target of <130 systolic **[A]** and <80 diastolic **[B]**
- Prescription of angiotensin-converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB) in patients with hypertension or albuminuria **[A]**[3]
- Statin therapy for primary prevention against macrovascular complications in patients with diabetes who are $\geq$age 40 or who have a low-density lipoprotein cholesterol (LDL-C) $\geq$100 mg/dL. **[A]**[4]
- Management of cardiovascular risk factors
- Assurance of appropriate immunization status (tetanus, diphtheria, pertussis, influenza, pneumococcal vaccine) **[C]**
- Anti-platelet therapy **[A]**: low dose aspirin daily for primary prevention in those at increased cardiovascular risk with type 1 **[C]** and type 2 **[A]** diabetes, unless contraindicated[5]

[3]Consider referral of patients with serum creatinine value >2.0 mg/dL (adult value) or persistent albuminuria to nephrologist for evaluation.

[4]Target LDL-C <100 mg/dL **[B]**. For patients with overt cardiovascular disease (CVD), a lower LDL-C goal of <70 mg/dL is an option **[B]**.

[5]Aspirin therapy is not routinely recommended for patients under the age of 21 years because of the increased risk of Reye's syndrome.

Frequency

At each visit until therapeutic goals are achieved

Definitions:

Levels of Evidence for the Most Significant Recommendations

A. Randomized controlled trials
B. Controlled trials, no randomization
C. Observational studies
D. Opinion of expert panel

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of evidence is provided for the most significant recommendations (See "Major Recommendations" field).

The guideline is based on several sources, including the 2006 American Diabetes Association Clinical Practice Recommendations (www.diabetes.org).

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Through a collaborative approach to developing and implementing common clinical practice guidelines and performance measures for diabetes mellitus, Michigan health plans will achieve consistent delivery of evidence-based services and better health outcomes. This approach also will augment the practice environment for physicians by reducing the administrative burdens imposed by compliance with diverse health plan guidelines and associated requirements.

POTENTIAL HARMS

Aspirin therapy is not routinely recommended for patients under the age of 21 years because of the increased risk of Reye's syndrome.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

This guideline lists core management steps. Individual patient considerations and advances in medical science may supersede or modify these recommendations.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

When consensus is reached on a final version of the guideline, a statewide mailing of the approved guideline is completed. The guideline is distributed to physicians in the following medical specialties:

- Family Practice
- General Practice
- Internal Medicine
- Other Specialists for which the guideline is applicable (e.g., endocrinologists, allergists, pediatricians, cardiologists, etc.)

IMPLEMENTATION TOOLS

Chart Documentation/Checklists/Forms

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness
Staying Healthy

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Michigan Quality Improvement Consortium. Management of diabetes mellitus. Southfield (MI): Michigan Quality Improvement Consortium; 2006 Jul. 1 p.

ADAPTATION

This guideline is based on several sources, including the 2006 American Diabetes Association Clinical Practice Recommendations (www.diabetes.org).

DATE RELEASED

2004 Jul (revised 2006 Jul)

GUIDELINE DEVELOPER(S)

Michigan Quality Improvement Consortium - Professional Association

SOURCE(S) OF FUNDING

Michigan Quality Improvement Consortium

GUIDELINE COMMITTEE

Michigan Quality Improvement Consortium Medical Director's Committee

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Physician representatives from participating Michigan Quality Improvement Consortium health plans, Michigan State Medical Society, Michigan Osteopathic Association, Michigan Association of Health Plans, Michigan Department of Community Health and Michigan Peer Review Organization

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Management of diabetes mellitus. Southfield (MI): Michigan Quality Improvement Consortium; 2004 Jul. 1 p.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the Michigan Quality Improvement Consortium Web site.

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- Diabetes checklist (2 versions). Electronic copies available in Portable Document Format (PDF) from the Michigan Quality Improvement Consortium Web site. See the related QualityTool summaries on the Health Care Innovations Exchange Web site: Version 1 and Version 2.

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on December 10, 2004. The information was verified by the guideline developer on January 21, 2005. This NGC summary was updated by ECRI on October 13, 2006. The updated information was verified by the guideline developer on November 3, 2006.

COPYRIGHT STATEMENT

DISCLAIMER

NGC DISCLAIMER

The National Guideline Clearinghouse™ (NGC) does not develop, produce, approve, or endorse the guidelines represented on this site.

All guidelines summarized by NGC and hosted on our site are produced under the auspices of medical specialty societies, relevant professional associations, public or private organizations, other government agencies, health care organizations or plans, and similar entities.

Guidelines represented on the NGC Web site are submitted by guideline developers, and are screened solely to determine that they meet the NGC Inclusion Criteria which may be found at http://www.guideline.gov/about/inclusion.aspx .

NGC, AHRQ, and its contractor ECRI Institute make no warranties concerning the content or clinical efficacy or effectiveness of the clinical practice guidelines and related materials represented on this site. Moreover, the views and opinions of developers or authors of guidelines represented on this site do not necessarily state or reflect those of NGC, AHRQ, or its contractor ECRI Institute, and inclusion or hosting of guidelines in NGC may not be used for advertising or commercial endorsement purposes.

Readers with questions regarding guideline content are directed to contact the guideline developer.

Date Modified: 9/29/2008


DEPARTMENT OF HEALTH & HUMAN SERVICES • USA